Community-Oriented Urban Housing Design for Beijing: Strategies for LMRHD and Urban Design
社区导向的北京城市住宅设计：中低层高密度住宅与城市设计策略

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Abstract: China’s rapid economic growth and ensuing rapid urbanization over the last three decades have created unprecedented demand for housing in urban areas. In Beijing, accommodating such large numbers of people has created a landscape dominated by high-rise residential buildings. While high-rise development may satisfy the large demand for housing, it is causing problems within the larger socio-cultural context. These problems include (but are not limited to): displacing families from acquainted neighborhoods, increasing average commute lengths, and the disappearance of established communities. High-density, high-rise developments are not conducive to the creation of a diverse environment that supports a healthy urban lifestyle. As such, this paper proposes an alternative housing arrangement. The development and deployment of a range of low- and mid-rise, high density (LMRHD) residential (and mixed-use) building types in Beijing can re-establish close-knit communities and social networks. By working to understand the preexisting nature of the local culture of inhabitation, viewed through the lens of history and anthropology, this paper seeks to present a series of possibilities in form of a demonstration project for two villages surrounding Beijing as a result of a one-semester (four-month) long urban design/housing studio led by the Massachusetts Institute of Technology (MIT). The demonstration project represents key features of community-oriented housing: mixed-use, mixed-tenure and mixed-housing type development, humanized and walkable neighborhood, high-density, integrated open space, and environmental morphology; all of which are represented through a series of experimental designs. The studio’s final product will be developed into a new form of architecture, serving as a prototype for future Community Housing villages in Beijing.

关键词: 社区设计, 城市住宅, 北京, LMRHD, 城市设计

1 Rationales and Historical Background

Courtyard houses are an architectural manifestation of Chinese dwelling culture. They represent both the history of one of the greatest intellectual empires the world has ever known and epitomize the way that similar spaces can use orientation and occupation strategies to convey different meanings and social implications. The courtyard is more than mere open space; it is a symbolic realm that expresses the connections between the building elements, family members, and the human-spirit relationship—all through the intrinsic function of the “space between.” It represents the “individual life” of the Chinese people: the common mode of life prior to the period the People’s Republic of China (1949). Before 1949, most Chinese people lived a communal life in a courtyard house and worked mainly in self-sustaining agricultural production. The family unit was built to embrace the courtyard space, and when expanded by the growing numbers of extended family (grandparents, aunts, uncles, etc), it created a profound spatiality of place within the enclosed wall of individualism. Not only was the sense of security reinforced by the wall, but the structure and family hierarchy was also taken care of by the location of the houses within the geometrical structure of the housing cluster. The courtyard houses were, indeed, an ingenious creation. Hutong, a term often misunderstood as a synonym for the courtyard house, is the finest form of courtyard community and street lane organization in China. It is found within the walls of the Imperial City of the
ancient northern capital of Beijing, and is regarded by architecture scholars as the most sophisticated courtyard house organization functionally and stylistically. “Hutong community,” then, is a practical form of dwelling in a lane-structured neighborhood – it is the “grain” of the history of Chinese dwelling culture.

As industrialization took hold in the 1950s and 1960s, the so-called “working communes” of factory workers were built to replace the courtyard houses, which were considered uneconomical in the push towards heavy industrial investment. Resident were encouraged (and sometimes coerced) to leave courtyard houses and relocate to government-sponsored communes (a precedent set by the former USSR, a key Chinese ally and influence during the period). The traditional lifestyle was altered to promote the efficient lifestyle of the Socialist worker whose needs were, in theory, mechanistic in their supposed desire for nothing more than adequate living space and convenience to work. The spiritual courtyard ground was not longer a part of the equation, having been replaced with a vast recreational space that would have been unrecognizable just one generation earlier. The results were disastrous. Scholars today claim that this shifting of people without preparation from one style of living to another with blatant disregard for thousands of years of culture resulted in an unprecedented waste of human resources, while illustrating a profound lack of self-perception. Cultural resistance was working against the commune, as it failed to provide the spirit of the inhabitation. Throughout the political turmoil of the Great Leap Forward and the Cultural Revolution, the attempt to eliminate the courtyard house continued unreserved in order to strive for the more economical dwelling norm of an emerging industrialized country. Here we learn the first reason why the courtyard houses were allowed to deteriorate.

Thanks to the rapid economic growth in China, the demand for housing in a big city like Beijing has skyrocketed. Since the beginning of the 1980s and the opening of the bamboo door, neighborhood after neighborhood of low-rise courtyard housing has been razed to make way for more profitable, high-rise apartments and condominiums. In addition to increased demand, high-rise housing is close to becoming a necessity, given the exorbitant land values in Beijing. However, the new trend has resulted in a three major issues. First, high-rise apartments lack of the interstitial spaces that enable the kind of activities that foster interaction between the units, resulting in the incoming of vertical squatters. Second, the high-rise’s pre-defined, single-standard spatial organization has failed to accommodate the occupants with any flexibility, causing severe damage to the structure of the traditional Chinese family unit. There is no way for the “one-size-fits-all” philosophy to accommodate the interplay of spatial occupation of Chinese dwelling culture. Lastly, the emphasis on the high-rise has resulted in an oversight of the existing and presently rotting courtyard housing typology. Those groups of people who cannot afford to live in the high-rise occupy several hundred-year-old courtyard houses under unsanitary conditions. The self-expansion due to increased demand of space triggers the problem of illegal construction of potentially dangerous structures, which put many people with little other choice in living situations at risk. As it is clear to us all that these issues emanate from a single source, we are responsible for suggesting the way in which this can “change” for a better way of life.

2 Issues, Goals, and Tasks

The principal issue that our studio aims to address is the development of high-rise residential building. Although high-rise development might logically and efficiently solve the problem of accommodating large numbers of people in a small footprint, from the extensive existing body of literature indicates that high-rise development causes many problems relating to a diminished sense of community. Such development alone is not conducive to the maturity of a diverse environment supportive of urban life. While it is true that courtyard houses – despite their many benefits - are no longer the most appropriate urban housing for Beijing, our studio searches for a “mediating ground”; a viable solution in the low-/medium-rise high-density, multi-functional, community-oriented urban housing medium that will preserve the unique nature of individual vibrant neighborhoods. We seek a need to constructively develop a range of low- and mid-rise, high density (LMRHD) residential (and mixed-use) building types that could be deployed practically in specific sites around Beijing, representing an alternative for “Beijing urban
With the belief that historical consideration is extremely important to the design of new urban housing, we begin with case studies from which we derive a thorough understanding of the complicated structure underlying the social, economic, and cultural forces that distinguish housing in Beijing from others. Through existing housing typology, including Professor Wu Liangyong’s renowned Ju’er Hutong, we establish a programmatic analysis of spatial usage, human interaction, workability of existing open spaces, flexibility of private-public space, and the mechanism of mixed-use functions within the housing complex. On-site surveys have greatly helped in defining the regional needs, sensitivity, and characters of the Chinese dwelling.

The failure of a housing project usually arises from lack of understanding of the site context and its social domesticity; sense of security, accessibility, connection, culture; which comes from the dynamics of people in the society. The initial idea is a mixed-use community and open space, which will encourage interaction between people –both original and prospective— in the community and provide possible financial resources through training and entrepreneurship programs. The role of public gathering space and open space is very crucial to the direction that this kind of development will take as they engage people in public activities that enrich the sense of community, safety, and education; a use of public circulation, both at the scale of the master plan and at the scale of the corridor, is a significant factor of community engagement. Our studio ultimately seeks to find appropriate solutions to create environmentally sound and economically viable places for living, but also to potentially rectify problems of unsustainable settlements such as poor sanitation, inadequate ventilation and natural lighting. In addition, we are certain that there are physical aspects of the courtyard house that are still valid for today’s housing situation in Beijing, specifically the most basic concept of neighborhood sensibility. Hundreds of years of courtyard house history have made it part and partial of the traditional Chinese culture. Several design proposals from scholars at MIT rethink how urban housing lies in the neighborhood concept as well as the functionality based on requirements of the contemporary life-style. These proposals enthusiastically represent the architectural means of coping with the demand of an individual life; while at the same time provide the dynamic for communal lifestyles. The balance of commercial and residential programs can sustain the economy of today’s Beijing urban housing.

3 Project Background

In 2005 the Chinese government proposed a strategy for "building a new socialist countryside," which means that the coordinated development of urban and rural areas, rural planning, construction, and economic growth, is becoming one of the core tasks in the country's modernization process. Currently, most of the rural areas in China lack reasonable planning: They are short of infrastructure, construction, and public utilities. The environment cannot be protected effectively and living conditions in many areas are quite poor. Thus "Planning ahead" becomes imperative in the process of "building a new socialist countryside." In the Spring of 2007, led by Professor Jan Wampler and Studio Instructor Non Arkaraprasertkul of MIT, and Dr. Peng Lin and Dr. Shao Lei of Tsinghua University School of Architecture, MIT graduate level master of architecture studio brought about 12 advanced students in architecture and urban planning to visit and engage this special social, political, and economic context. The site is one of the villages located in the Fangshan District of Beijing. After one week’s field study and social investigation, the students returned to Cambridge for an intense semester of design work. The final results show very creative and interesting ideas for guiding China’s rural community development, including space morphology, social life, building technology, and cultural expression. These explorations provide good references in the rural community planning of Beijing.

4 Strategies for Design

For some time, the development of Beijing has been concentrated on building large high-rise buildings around the ring roads. This has caused many problems, including displacing families from neighborhoods
they know, long distance commuting, and the disappearance of established and beloved communities. The landscape is full of these high-rise towers – each looming larger than the last. They have destroyed the landscape of beautiful Beijing and are on route to becoming the next slums in the city, as happened in several cities in this country in the 1950s. New development will continue to take place in China, but perhaps models better than the ones in present use can provide a path to a brighter future. This publication is the work of a studio at MIT that focuses on designing a new prototype future village expansion near Beijing, China. Students were asked to design while considering the following questions:

1) How to design high intensity housing but not in high rises.
2) How to design housing that could change with the families through their journey of life.
3) How to design communities that can provide intimate amenities and produce a feeling of community.
4) How to consider the “space between” buildings as positive open spaces and not just left over space.
5) How to use new materials as well as existing construction methods and reflect the culture of the area while understanding the changes in China.

The work started with a trip to China hosted by both the local governments and area developers. The trip was short, but intense and very informative, thanks to our hosts. On returning from China we proceeded to design both from the house scale to the overall scale of the village. We also considered the “space between” the buildings, always exploring new ways of designing “places” for people to enjoy life. The process of the studio was to work at several scales of architecture at the same time and merge these studies into a basic overall plan.

In this studio we started with the individual unit, then the cluster, then a neighborhood and finally a community. After designing the community, the work of the first scales was modified to adjust to the overall plan. Therefore all scales were considered at once. In addition, and the most important design exercise was to look at the “space between” the buildings as a positive building block. By “space between” we are referring to the fabric or public framework that holds together the objects. Although, “space” has been an important element of historic China, it now has been lost in the design process creating spaces that have little use or do not create a fabric of a community, so important for Chinese life. The “space between” exercises included designing only the space with out thinking of the objects as a way of accenting the need for space. The designs were then adjusted with the addition of the buildings, clusters and community design.

Figure 1,2: Liangxiang, first site conditions for new village, and Changyang, the second site
Figure 3,4 A grouping of individual units to form a social cluster; Space Between Model made from plexiglass to illustrate the types of space connecting all parts of the community making a public framework of paths and places.

Figure 5,6 Model of the complete community show varied scales of space; Overall Plan of the community with spaces acting as the fabric to connect the units, clusters and neighborhoods.

Image 7,8,9,10 House Renderings – Images of individual units, the basic building block of the community.
5 Summary

It is only by designing all scales of housing that new solutions that are more livable will be created. The old method of designing “master plans” and then designing housing to fit the plan is no longer valid to produce human housing. At the same time an overall plan must also been done, but sensitive to the smallest scale. The architecture of the future must also consider the “space between” as an important building block in the design process. This space between becomes the building block of the fabric of the community. Without it, the city is just a collection of individual buildings. Great cities are measured by the importance that has been place on the public space framework. The public framework or the “space between” becomes a reflection of the spirit of the society. As architects we must hold a mirror of society while looking through the mirror to find the future of the society.

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